

SPECIAL CONTRIBUTIONS

Emergency Center Categorization Standards

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THE EC CATEGORIZATION TASK FORCE

Abstract. The SAEM EC Categorization Task Force was developed in response to the 1994 Macy Foundation's recommendation that emergency medicine (EM) organizations "should revise the classification of emergency departments . . . to reflect the level of care available in emergency departments, and indicate whether or not facilities are adequate and whether appropriately qualified and credentialed emergency physicians are available 24 hours a day." By holding Level 1 emergency centers (ECs) to objective standards based on the quality of care delivered as well as administrative, research, and educational efforts, SAEM hopes to improve patient care. The SAEM EC Categorization Task Force is now beginning the process of reviewing ECs that provide comprehensive emergency care and serve as regional resources for

education, research, and administration in EM. This standards document describes relative and critical criteria to be met in order to receive designation as a Level 1 emergency center. Such centers must meet all critical criteria, and be in sufficient compliance with most or all relative criteria, in order to achieve this designation. This process is entirely voluntary. Any EC is eligible for review. Any institution can initiate the review process by applying. Application materials and further information, including the policies and procedures of the SAEM EC Categorization Task Force, are available from SAEM. **Key words:** emergency departments; emergency centers; categorization; standards; SAEM. *ACADEMIC EMERGENCY MEDICINE* 1999; 6:638-655

I. Staffing

A. Medical Staffing

1. Department Head/Chief/Chair. A director must be designated for the emergency center (EC). Should the position be vacated, an acting director may be appointed for a period not to exceed one year. This individual should have the same qualifications as the director [*critical criteria (CC)*].

a. Qualifications:

- 1) Board-certified [American Board of Emergency Medicine (ABEM), American Board of

Osteopathic Emergency Medicine (ABOEM)] physician in emergency medicine (EM) (or board-prepared with one-year EC experience). Board certification must be obtained within five years of admissibility. Evidence of administrative/leadership experience (*CC*).

b. Responsibilities [*relative criteria (RC)*]:

- 1) To provide 24-hour responsibility for the center.
- 2) To possess the administrative authority to admit patients to any service as appropriate.
- 3) Ongoing clinical supervision of attending physicians, residents, physician assistants, nurse practitioners, and other housestaff members working in the EC.
- 4) Sign out rounds with the staff. This responsibility may be designated to the physi-

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- cian clinically assigned to the EC.
- 5) Establish policies and procedures for all patient populations (e.g., pediatric, adult, geriatric, trauma) with yearly review and update.
 - 6) Ensure continuing education for attendings and housestaff.
 - 7) Provide continuous quality improvement (CQI) through a structured departmental program that is implemented by the EC on an ongoing and retrospective basis. EC CQI is linked with hospital-wide multidisciplinary CQI.
 - 8) Have in place a staff development program.
 - 9) Work collaboratively with the EC nurse manager for overall EC management.
 - 10) Chair or designee is a member of key hospital committees (e.g., Critical Care, Pharmacy, Laboratory, CQI). Should have representation on the hospital executive committee.
- c. Continuing education: 50 hours per year (*RC*).
2. Attending Physicians. At least one attending assigned to the EC exclusively, 24 hours a day, seven days a week, at a ratio of 1:10–1:20 patients per eight hours as primary provider or 1:21–1:30 patients per eight hours as a supervisor. If the director is to be included in the physician:patient ratio, he or she must be physically present and seeing patients for that shift. Staffing should be adjusted up to meet activity (*CC*).
 - a. Qualifications of at least one attending assigned to the EC exclusively, 24 hours a day, seven days a week: Board-certified (ABEM, ABOEM) or admissible (completed required amount of training) in EM. Board certification must be obtained within five years of admissibility (*CC*).
 - b. Qualifications of additional attending physicians assigned to the EC: Board-certified (ABEM, ABOEM) or admissible (completed required amount of training) in EM. Board certification must be obtained within five years of admissibility. In the case of physicians covering a designated pediatric area of the EC, board certification or admissibility in pediatric EM also meets this standard (*RC*).
 - c. Responsibilities:
 - 1) Clinical assignment exclusively to the EC during an assigned shift (*CC*).
 - 2) Supervise and provide direct patient care during clinical shift (*CC*).
 - 3) Care of all EC patients where emergency intervention is required, including assessment, intervention, and evaluation, in consultation with specialty services (*CC*).
 - d. Continuing education: 50 hours per year (*RC*).
 - e. All physicians must be credentialed in the core curricular procedures of EM (*CC*).
3. On-call Specialty Attending Physicians.
 - a. Qualifications (*CC*):
 - 1) The hospital must provide attending physicians who are board-certified/board-admissible in their respective specialties.
 - 2) Member of hospital staff.
 - b. Responsibilities:
 - 1) Available 24 hours a day, seven days a week, via a schedule available in the EC (*CC*).
 - 2) Available by telephone within 10 minutes and in the EC for consultation within 30 minutes of being called (*RC*).
 - 3) Specialty attendings are (*RC*): *anesthesiology, angiography, cardiology, cardiothoracic surgery, gastroenterology, *general surgery/trauma, genitourologic surgery, hematology, infectious disease, *internal medicine/critical care, interventional radiology, maxillofacial surgery (ENT, plastic, or oral surgery), nephrology, neurologic surgery, neurology, *obstetric–gynecology

*Must be in house 24 hours/day.

- logic surgery, ophthalmic surgery, orthopedic surgery, pathology (anatomic), pathology (clinical), pediatrics, pediatric surgery, psychiatry, pulmonary diseases, radiology, e.g., routine diagnostic, vascular surgery.
4. Resident Physicians On Call. If there is no in-house attending physician, a resident at the specified level, with hospital privileges, is an acceptable substitute.
 - a. Qualifications:
 - 1) General surgery at PGY4 level, minimum. This person should be accorded independent privileges to initiate and perform emergency surgery (CC).
 - 2) Anesthesiology at PGY3 level, or certified registered nurse anesthetists (CC).
 - 3) Radiology at PGY4 level, minimum. If hospital does not have a radiology training/residency program, this requirement can be met with the radiology attending requirement as described above (RC).
 - 4) Internal medicine/critical care at PGY3 level, minimum (RC).
 - b. Responsibilities:
 - 1) Housestaff physician to be within the hospital and available in the EC within 5 minutes. The housestaff physician must be available only in the absence of an attending physician in the respective specialty (RC).
 - 2) Available 24 hours a day, seven days a week, via an available EC printed schedule (RC).
 5. Rotating Housestaff.
 - a. Responsibilities: Housestaff rotating to the EC are assigned to examine and treat patients under the supervision of the EC attending staff (CC).
 - b. Qualifications: Housestaff rotating to the EC from other services should have instruction and training in Basic and Advanced Cardiac Life Support (BCLS, ACLS).
- They should complete BCLS and ACLS refresher courses (or equivalent courses) or successfully challenge the exams every two years. Housestaff rotating to the pediatric EC should have instruction and training in BCLS and Pediatric Advanced Life Support (PALS). They should complete BCLS and PALS refresher courses (or equivalent courses) or successfully challenge the exams every two years (RC).
- B. Nursing Staffing.
 1. Nurse Manager/Patient Care Coordinator.
 - a. Qualifications:
 - 1) State registered nurse (RN) licensure (CC).
 - 2) Full-time RN assigned to the EC exclusively (CC).
 - 3) Certified emergency nurse (CEN) certification must be achieved within two years of hire (CC).
 - 4) Three years' experience as a clinical RN, two years of which must be in the ED/EC (CC).
 - 5) One-year administrative or leadership experience (CC).
 - 6) A master's degree in nursing, health care administration, or business administration (RC).
 - 7) Successful completion of BCLS, ACLS, Trauma Nurse Core Course (TNCC), and PALS or Emergency Nursing Pediatric Course (ENPC) or equivalent courses. Must demonstrate competency in BCLS, ACLS, and PALS or ENPC every two years. Must repeat the courses within one year of national guidelines changes (RC).
 - b. Responsibilities:
 - 1) Responsible for EC supervision and patient care coordination on a 24-hour, seven-day/week basis (CC).
 - 2) Supervises, directs, and selects all members of the EC nursing staff (RC).
 - 3) Provides clinical and administrative guidance to all members of the nursing team (RC).

- 4) Responsible for inservice and continuing education of all nursing personnel (*RC*).
 - 5) In collaboration with the EC management team, establishes, recommends, and updates clinical/administrative policies and procedures pertaining to all aspects of operations (*RC*).
 - 6) Participates in performance improvement program of EC (*RC*).
 - 7) Maintains responsibility for staffing of the nursing staff (*RC*).
 - 8) Works collaboratively with the EC medical director for overall clinical management and staff supervision (*RC*).
 - c. Continuing education: 50 hours per year (*RC*).
2. Charge Nurse. A charge nurse is assigned to the EC 24 hours/day, seven days/week. The charge nurse cannot have primary patient care responsibilities except in an EC where the average census on a particular eight-hour shift is 25 or less (*CC*).
- a. Qualifications
 - 1) State RN licensure (*CC*).
 - 2) Two years of ED/EC experience (*CC*).
 - 3) Successful completion of charge nurse orientation (*CC*).
 - 4) CEN certification must be achieved within two years of hire (*RC*).
 - 5) Successful completion of BCLS, ACLS, TNCC, and PALS or ENPC or equivalent courses. Must demonstrate competency in BCLS, ACLS, and PALS or ENPC every two years. Must repeat the courses within one year of national guideline changes (*RC*).
 - b. Responsibilities (*RC*):
 - 1) Responsible for the nursing care of patients on a specific shift.
 - 2) Enforces and implements policies and procedures.
 - 3) Supervises, directs, and evaluates the effectiveness of patient care on a specific shift.
 - 4) Provides consistent leadership to the staff on a specific shift.
 - 5) Monitors and directs patient flow.
 - 6) Participates in emergency nursing management decisions.
 - c. Continuing education: 50 hours per year (*RC*).
3. Nurse Educator.
- a. Qualifications:
 - 1) State RN licensure (*CC*).
 - 2) A master's degree or current enrollment in a master's program in nursing, nursing education, or equivalent (*CC*).
 - 3) Two years of ED/EC experience, or one year of critical care and one year of ED/EC experience (*RC*).
 - 4) CEN certification must be achieved within two years of hire (*RC*).
 - 5) Successful completion of BCLS, ACLS, TNCC, and PALS or ENPC or equivalent courses. Must demonstrate competency in BCLS, ACLS, and PALS or ENPC every two years. Must repeat the courses within one year of national guideline changes (*RC*).
 - b. Responsibilities (*RC*):
 - 1) RN responsible for inservice education in the EC.
 - 2) Plans and implements inservice and continuing education programs for all levels of nursing personnel on a 24-hour basis, including orientation, BCLS, and other technical skills necessary for the care of all patients in the EC.
 - 3) In collaboration with the nurse manager, evaluates the clinical performance of all nursing personnel on an ongoing basis.
 - 4) For ECs with an annual census of 40,000 or more, the nurse educator is assigned exclusively to the EC and reports to the emergency center nursing leadership.
 - c. Continuing education: 50 hours per year (*RC*).
4. Staff Nurse, Including Part-time/Per-

diem Staff. Staffed at the following ratio per eight hours (RN:bed): Monitored beds (1:4); unmonitored beds (1:6); observation beds (1:8); resuscitation beds (2:1) (*CC*).

a. Qualifications:

- 1) State RN licensure (*CC*).
- 2) One year of clinical RN experience (*CC*).
- 3) Successful completion of an EC orientation course based on Emergency Nursing Association (ENA) core curriculum, in the first year of EC employment (*CC*).
- 4) Documents knowledge and understanding of EC policies and procedures (*CC*).
- 5) Successful completion of BCLS, ACLS, TNCC, and PALS or ENPC or equivalent courses. Must demonstrate competency in BCLS, ACLS, and PALS or ENPC every two years. Must repeat the courses within one year of national guideline changes (*RC*).
- 6) Current CEN certification is recommended (*RC*).

b. Responsibilities (*RC*):

- 1) RN assigned exclusively to the EC for the entire shift.
- 2) Communicates difficulties to the charge nurse.
- 3) Supervises the performance of ancillary nursing personnel.
- 4) Performs triage, direct care, and education to patients.

c. Continuing education (*RC*):

- 1) Continuing education of 50 hours per year.
- 2) For part-time/per-diem RNs, continuing education programs of 25 hours per year.

5. Triage Staff. Triage of patients will be performed by specifically trained professional staff using defined and approved protocols.

a. Qualifications:

- 1) State RN licensure (*CC*).
- 2) One-year EC clinical experience (*CC*).

b. Responsibilities (*RC*):

- 1) An RN assigned to triage 24 hours a day, seven days a week, is required. There will

be a specific RN assigned exclusively to triage, at a ratio of 1:50 per eight-hour shift, in addition to the above-established ratios of professional staff.

- 2) This person will have high visibility in the EC and be able to perform initial patient assessment prior to registration, as well as ongoing monitoring of the waiting room.

6. Agency Staff/Float—RNs.

a. Qualifications:

- 1) State RN licensure (*CC*).
- 2) Oriented to the EC (*CC*).
- 3) Performance evaluation after orientation to the EC, and annually thereafter (*CC*).
- 4) Demonstrated knowledge in EC nursing (*RC*).
- 5) Current successful completion of BCLS, ACLS, TNCC, and PALS or ENPC or equivalent courses (*RC*).

7. Licensed Practical Nurses (LPNs). LPNs may not be substituted for RNs to augment an insufficient RN/patient ratio (*CC*).

a. Qualifications:

- 1) State LPN licensure (*CC*).
- 2) Successful completion of an EC orientation course (based on assignment) and successful completion of a BCLS or equivalent course. Must demonstrate competency in BCLS every two years and must repeat the course within one year of national guideline changes (*RC*).
- 3) One year of clinical experience (*CC*).

b. Responsibilities (*RC*): Assist the RN in all aspects of EC care and perform all designated functions under his or her supervision.

c. Continuing education: 50 hours per year (*RC*).

C. Other Staff.

1. Inpatient Admitting Staff.

- a. Additional physician staffing: The facility shall have a written policy that inpatient admitting physician(s) shall assume the responsibility for the clinical management of patients who have been admitted from the EC and are

- awaiting transfer to inpatient beds. If there is an admitting team, this team must be supervised by an attending physician and must consist of staffing not assigned to any other EC responsibilities. Physician(s) assigned to the care of such boarder patients may not be concomitantly assigned to the care of EC patients. This policy must be signed by the chief executive officer (or by a comparable senior executive) and by the appropriate clinical chairs (CC).
- b. Additional RN staffing: This policy must specify that nursing staffing ratios for these patients must be maintained at the same level as the inpatient service(s), consistent with the acuity of the patients (CC).
 - c. Ancillary services (e.g., phlebotomy, nursing assistants, transport services) must be provided at the same level as the inpatient services (RC).
2. Administrator/Administrative Assistant.
 - a. Qualifications:
 - 1) One year in hospital management of clinical division (RC).
 - 2) Graduate of an accredited program at least at a minimum of a baccalaureate (BS/BA) level (RC).
 - b. Responsibilities: Assigned to the EC, with 24-hour responsibility for the coordination and management of all ancillary and clerical functions, in collaboration with the EC director and nurse manager (RC).
 - c. Continuing education: 50 hours per year related to health care administration (RC).
 3. Clerical Staff.
 - a. Registrar: With 24-hours/day, seven-days/week coverage, at a ratio of 1:25 patients per eight hours. Full-time staff is required to provide registration, billing, logging, and clinical appointments to expedite patient flow (CC).
 - b. Unit clerk: For ECs that register more than 12 patients per eight-hour shift, there must be a unit clerk present, exclusive of personnel performing the registration and billing function. If the ratio exceeds 1:25 patients per eight hours, an additional clerk must be provided (CC).
 4. Technician. Works under the direct supervision of a licensed professional appropriate to the local standards in the performance of technical/laboratory duties exclusively in the EC. Performs additional related duties within EC policies and procedures and Joint Commission on Accreditation of Healthcare Organizations (JCAHO)/regulatory agency requirements. Demonstrates and promotes service excellence at all times (CC).
 5. Interpreter.
 - a. Language translation:
 - 1) Fluent in the English language (CC).
 - 2) Language bank/interpreters available 24 hours a day, seven days a week, for those who do not speak English in the community (CC).
 - b. Hearing impaired: Available 24 hours a day, seven days a week (CC).
 6. Messenger. With 24-hours/day, seven-days/week coverage. A full-time messenger function for the EC, exclusive of the professional staff, for the acquisition of necessary supplies and equipment, delivery of lab specimens, acquisition of records, and performance of other errands (RC).
 7. Social Worker.
 - a. Qualifications:
 - 1) Graduate of MSW degree program (CC).
 - 2) One year of social work experience (CC).
 - b. Responsibilities:
 - 1) At least one full-time position assigned to ensure that patients' social service needs are met on a 24-hour basis (CC).
 - 2) Provides required follow-up and referral based on community needs, including placement, clothing, home assistance, transportation means, and shelter when needed (CC).
 - 3) Implements individual or group counseling for selected categories of patients or pa-

- tients' family problems (*CC*).
- 4) Provides for the coordination of assessment of all possible child abuse (physical and sexual) and neglect, elder abuse and neglect, domestic violence, sexual assault and victims of crime, crisis intervention, and bereavement counseling (*CC*).
- c. Resources available: Twenty-four-hour accessibility by telephone to a social work supervisor, child protection coordinator, or senior member of the child protection team for consultation or referral agreements in place (*CC*).
- d. Continuing education: (*RC*) 50 hours per year; should encompass the following topics: 1) child abuse and neglect, 2) sexual assault, 3) domestic violence, 4) elder abuse/neglect, 5) crime victims.
- 8. Counselors. Alcoholism/substance abuse counselor. It is recommended to have a counselor on alcoholism/substance abuse available for patients (*RC*).
- 9. Nurse Practitioner (*NP*).
 - a. Responsibilities: Care of EC patients under the supervision and guidance of a licensed physician, based on collaborative agreements and protocols (*CC*).
 - b. Qualifications:
 - 1) State RN licensure (*CC*).
 - 2) Graduate of a National League of Nursing (NLN)-accredited NP program (*CC*).
 - 3) Current certification from American Nurses Credentialing Center (ANCC) or other national certifying board (*CC*).
 - 4) Successful completion of BCLS, ACLS, TNCC, and PALS or equivalent courses. For BCLS, ACLS, and PALS, must demonstrate competency every two years. Must repeat the courses within one year of national guideline changes. NP shall have training and experience in trauma management equivalent to Advanced Trauma Life Support (ATLS) (depending on role and responsibility in the EC) (*RC*).

- 5) MS degree in nursing (*RC*).
- c. Continuing education: 50 hours per year (*RC*).
- 10. Physician Assistant/Associate (*PA*)
 - a. Responsibilities: Care of EC patients under the supervision and guidance of a licensed physician, based on written agreements and protocols (*CC*).
 - b. Qualifications:
 - 1) BS/BA degree from a recognized PA program (*CC*).
 - 2) Licensure and practice as required by state law (*CC*).
 - 3) Successful completion of BCLS, ACLS, and PALS or equivalent courses. For BCLS, ACLS, and PALS, must demonstrate competency every two years. Must repeat the courses within one year of national guideline changes. PA shall have training and experience in trauma management equivalent to ATLS (depending on role and responsibility in the EC) (*RC*).
 - c. Continuing education: 50 hours per year (*RC*).

II. Professional Training and Continuing Education

- A. Orientation (*RC*): A program for all full-time personnel should be implemented in a planned, formal, and coordinated way, ideally as a joint effort of nurses, physicians, and administration. The orientation program should include:
 - 1. Recognition, recording, and interpretation of signs and symptoms of emergent and nonemergent adult and pediatric patients.
 - 2. Initiation of BCLS and other life-support procedures for both adult and pediatric patients.
 - 3. Parenteral administration of IV fluids, blood and blood components, and emergency drugs and substances.
 - 4. Safe and effective use of all electronic equipment.
 - 5. Recognition and intervention for life-threatening arrhythmias.
 - 6. Infection control, including aseptic technique, handwashing, contact isolation, respiratory isolation, and reverse isolation.
 - 7. Management of sepsis.

8. Management of wounds.
 9. Initial management of burns.
 10. Initial management of general trauma, and spinal cord and head injuries.
 11. Emergency delivery and initial care of the newborn.
 12. Initial management of overdose (drugs and alcohol), and withdrawal syndromes.
 13. Initial management of psychiatric emergencies, including:
 - a. The violent, homicidal, and suicidal patient.
 - b. Management of grief reaction.
 - c. Differentiation between organic and functional states.
 14. Recognition and initial intervention of psychological and social problems of patients and their families.
 15. Initial management of amputated parts.
 16. Knowledge of regional paramedic protocols.
 17. Recognition and management of the pediatric, geriatric, and adult abuse/neglect patient.
 18. Initial management of the sexually assaulted adult and pediatric patient.
 19. Knowledge of regional hazardous materials (hazmat) and disaster protocols.
- B. Continuing Education (*RC*). A program for all personnel should be implemented in a planned, formal, and coordinated way, as a joint effort of nurses, physicians, and administration to reflect the current needs of the staff and patient population served. The continuing education program should include at least the following:
1. New diagnostic and therapeutic measures.
 2. Safety control.
 3. Infection control.
 4. BCLS review, at least yearly.
 5. Principles of treatment related to burn care.
 6. General and central nervous system trauma.
 7. Respiratory care.
 8. Participation in extramural educational programs related to EM or emergency nursing.
 9. Review and update of items listed in orientation program.
 10. Review and update on pediatric and adult abuse/neglect patients.
11. Managing the violent patient.
- III. Facility. It is recommended that hospitals that treat a large number of nonurgent patients in their EC consider establishing a walk-in clinic/fast-track area for the non-acute patient population to prevent overcrowding in the EC.
- A. EC Design, General. Requirements include:
1. EC signs—to include (*RC*):
 - a. A prominent street entrance sign that is:
 - 1) Visible by day and night from approximately one block.
 - 2) Well-lit at night.
 - 3) In English.
 - 4) In the major language(s) of the community.
 - b. Signs inside the hospital to indicate and direct patients to:
 - 1) EC location.
 - 2) Triage area.
 - 3) Registration area.
 - 4) "Prohibited to enter" area(s) to prevent unauthorized personnel from entering the treatment and work areas of the EC.
 - 5) Patient's bill of rights.
 2. A separate ambulance bay adjacent to the EC and within easy access of the EC treatment area. For all new EC treatment area construction after effective date of the first edition standards, the route from the ambulance bay to the EC treatment areas shall not transverse the EC waiting area (*RC*).
 3. A triage area with privacy during evaluation with triage nurse at the entrance to the EC with a telephone or intercom (before clerical registration). The triage area must offer an unobstructed view of the waiting room (*RC*).
 4. A registration area (or bedside registration when applicable) (*RC*).
 5. Separate utility rooms for clean and dirty (*RC*).
 6. Adequate storage area for backup supplies and equipment (*RC*).
 7. Appropriate facilities for handwashing and surgical scrub prior to sterile technique procedures (*RC*).

8. Shower or bath facilities and a mechanism for decontamination of patients (*RC*).
 9. Family grieving room/consultation room (*RC*).
- B. Design of Treatment Areas. Requirements include:
1. Separate treatment area for the emergent and urgent patients, to facilitate patient examination treatment (*RC*).
 2. An adequate space for adult and pediatric waiting and treatment areas (*RC*), e.g.:
 - a. A waiting area with adequate telephones and lavatories and a section designated for children.
 - b. An adult treatment area.
 - c. A pediatric treatment area.
 3. A separate area for cardiac arrest, multiple trauma, and emergency surgery procedures. This area must have at least two treatment bays, preferable 200 square feet each. If a separate area is not available for pediatrics, then this area must be equipped to handle pediatric respiratory arrest, cardiac arrest, multiple trauma, and emergency surgery procedures (*RC*).
 4. A separate area for the care of psychiatric emergencies, e.g., a crisis intervention room. There should be a capability to adjust to additional circumstances by providing a safe environment when more than one room is needed for the psychiatric patients (*RC*).
 5. The treatment area should have capacity for (*RC*): Physical examination, suturing and other surgical procedures, cast and splint application, and gynecologic examination and treatment. The treatment area should have the capacity to provide for emergencies of any variety, including psychiatric, burn, poisoning, neonatal, trauma, and cardiac in addition to the initial management and stabilization of all critically ill patients, as well as the capacity for special emergency procedures, e.g., ear, eye, nose, and throat, genitourinary.
 6. Isolation (*CC*): The treatment area must have a negative pressure room.
- C. Additional Requirements. These include:
1. Critical care areas in the hospital for life-threatening emergencies (*CC*).
 2. An operating room (*OR*), within easy access to the *EC*. The *OR* must be available 24 hours/day, seven days/week, and must be capable of initiating a case within 10 minutes (*CC*). *OR* specifics include:
 - a. Thermal control equipment:
 - 1) For the patient.
 - 2) For blood.
 - b. Monitoring equipment:
 - 1) ECG, cardiac monitoring, defibrillator with pacemaker capacity, pulse oximeter, and CO_2 monitoring.
 - 2) Invasive arterial pressure monitoring capability.
 - 3) Mechanical ventilator.
 - 4) Image intensifier (fluoroscopy).
 - c. Bronchoscopes and endoscopes.
 - d. Appropriately trained postanesthesia care unit (*PACU*) nursing staff, available 24 hours/day, as per a posted schedule.
 - e. Ancillary personnel physically available in the facility or within 30 minutes.
 3. A *PACU* or intensive care unit (*ICU*) capability is to be available in or adjacent to the *OR*, for postoperative patients, 24 hours/day with capability to perform (or transfer to a specialty referral center[†]) (*CC*): Cardiopulmonary bypass, peritoneal dialysis, hemoperfusion, hemodialysis, treatment of severe burns,[†] neurosurgical procedures, angiography–CT scanning, replantations,[†] hyperbaric oxygen therapy (*HBO*),[†] trauma center care,[†] pediatric intensive care, neonatal intensive care (Level 3 nursery),[†] ultrasound, ventilation/perfusion (*V/Q*) scanning.
 4. Medical, surgical, and pediatric *ICUs* capable of providing comprehensive critical care services 24 hours a day. *ICU* beds available within two hours on a consistent basis for the transfer of *EC* patients. Additionally, the *EC* must adhere to the requirements of the Emergency Medicine Treatment and Active Labor Act (*EMTALA*) (*CC*).

[†]Officially designated as a specialty referral center. Patients should be delivered to above specialty treatment centers within 30 minutes from time of decision to transfer. Formal transfer policies and procedures must exist.

IV. Equipment and Supplies. All emergency equipment and supplies necessary for acute treatment must be regularly maintained, and should be compliant with standard safety and minimal operating standards. Resuscitation equipment must be monitored for adequacy and function every shift, according to a formal mechanism with accountability.

A. General

1. Examination tables/stretchers to be stable, with a locking system, with side rails and safety straps, adjustable to a required position (Fowler or Trendelenburg) and preferably preventing any additional, unnecessary movement of the patient (*RC*).
2. Gynecologic exam table with stirrups (*RC*).
3. A communication system between all areas in the EC (e.g., intercom, call bell, telephone) (*RC*).
4. Refrigerators for storage of perishable drugs and items (*RC*).
5. Blood storage refrigerator in the EC or within easy access to it. There must be immediate access (within 5 minutes) to emergency transfusion blood. If there is no immediate access to blood, an emergency supply of at least two units of O-negative blood must be stored in the EC (*RC*).
6. Mechanical or hand pump to administer blood under pressure as well as IV infusion pumps (*RC*).
7. Blood warming equipment (*RC*).
8. Temperature and blood pressure (BP) monitoring equipment, including electronic noninvasive BP monitor with adult and pediatric cuffs (all sizes) (*RC*).
9. Capability for measuring temperature between 60° and 115°F (*RC*).
10. Bag-valve-mask, in adequate quantities. Infant (240 cc) and child (500 cc) bag-valve-mask devices with clear face masks with a soft or inflatable collar for easy sealing capacity (size 0–4) (*RC*).
11. Ophthalmoscope(s) and otoscope(s) in adequate quantities with adult and pediatric specula (*RC*).
12. Sandbags or similar immobilization devices in adequate quantities. Infant, toddler, child, and adult-size rigid cervical collars (*RC*).
13. Physical restraints, including papoose board (*RC*).
14. Central venous pressure monitoring equipment (*RC*).
15. Large-bore orogastric (OG) tube and equipment for gastric lavage. Large-bore nasogastric (NG) and OG tubes and equipment for gastric lavage, pediatric range, #10–#18 Fr; adult range, #32–#40 Fr. Feeding tubes, pediatric range, #5–#10 Fr; adult range, #16–#18 Fr (*RC*).
16. Doppler (*RC*).
17. Radiant warmer for newborn resuscitation and Isolette for newborn transport available immediately on request (*RC*).
18. Infant scale (*RC*).
19. Sterile equipment sets for (*RC*): Birth on arrival (BOA); central line; cutdown; external and transvenous pacemaker; intubation; lumbar puncture (lumbar puncture tray with 22-gauge 1.5-inch needles and manometer); minor surgical procedures and general suturing material (including cardiovascular and plastic suturing material); peritoneal lavage; pleural closed drainage system; phlebotomy (including 27-, 25-, 23-, and 21-gauge butterflies); tracheostomy–cricothyroidotomy equipment (including pediatric-size tracheostomy tubes: tube outside diameter in mm: premature 4.0, newborn 4.5–5.0, infant 5.5, 1–3 years 6.0, 3–6 years 7.0, 6–12 years 8.0, >12 years 10.0); thoracotomy; thoracostomy; arterial line catheter and equipment for intra-arterial pressure monitoring‡; pericardiocentesis; umbilical line placement tray with 3, 5-Fr catheters.
20. Bronchoscopes and endoscopes (*RC*).‡
21. Chest tubes including pediatric sizes: newborn 10–12 Fr, infant 14–20 Fr, child 20–28 Fr, adolescent 28–42 Fr (*RC*).
22. Volume ventilator (*RC*).§
23. Appropriate oxygen delivery devices in adult and pediatric sizes (*RC*).
24. Peak flow meters in adult and pediatric sizes (*RC*).
25. If the following optional items are available in the EC, operation of such must either be in compliance with regional and federal regulations or be designated as strictly for educational

‡In EC or immediately available from within the hospital.

§Available to the EC within 5 minutes.

- purposes (e.g., stat lab) (*RC*): Hematocrit/hemoglobin analyzer; blood gas analyzer; microscope; centrifuge.
26. Indicator tests with appropriate Clinical Laboratories Improvement Act (CLIA) licensing, competency certification, and quality control (*RC*). Dipstick for urinalysis; urine pregnancy test; nitrazine paper; stool testing for occult blood; capillary blood glucose testing (CBGT).
 27. Pediatric dose chart for all PALS medications and equipment, e.g., Broselow tape or similar system for accurate dosing (*RC*).
 28. IV equipment to include both pediatric (18–24-gauge, short length) and adult-size catheters (*RC*).
 29. Standard solutions for both the adult and pediatric patient IV use (*RC*).
 30. Several defibrillator/monitor units (with adult and pediatric paddles for external and internal use) (*RC*).
 - a. Several defibrillator/monitor units with a rate-triggered alarm.
 - b. Several battery-operated portable units for transport only.
 - c. At least one with a synchronization mode and external pacer capacity. Interchangeable leads between all defibrillator/monitors preferred.
 31. Flow-directed balloon catheters to be available within 30 minutes (e.g., in stock in the ICU) (*RC*).
 32. CPR cart equipped for at least three arrests, based on American Heart Association (AHA) standards. Pediatric and adult sizes to be included (*RC*).
 33. The following items are to be in the hospital and readily available (*RC*):
 - a. Hypothermia and hyperthermia equipment, e.g., bath tub or its equivalent, cooling stretcher, or high-speed fan.
 - b. Peritoneal dialysis.
 34. Equipment for cervical traction, to include Vincke or Gardner-Wells tongs (*RC*).‡
 35. Slit lamp (*RC*).
 36. Pulse oximeter (*RC*).
 37. Pediatric oral rehydrating solution, milk, and soy-based infant formulas (*RC*).
 38. Ring cutter (*RC*).
 39. Emergency drugs and solutions to include (*RC*): All drugs listed in current editions of AHA textbook of ACLS, PALS, and Neonatal Advanced Life Support; antibiotics; anticonvulsants; antidotes for poisonings; antihypertensive agents; agents that are listed in blood/body fluid exposure protocols (which should be compliant with current CDC recommendations), including antiretroviral agents promptly available for dispensing; cardiac medications; corticosteroids; diuretics; inhaled β -agonists; medications for intracranial hypertension; medications for psychiatric emergencies; medications for rapid-sequence intubation (including neuromuscular-blocking agents); medications for sedation and analgesia; opiates; tetanus and diphtheria (dT) prevention and prophylaxis (specifically adult dT and pediatric dT and tetanus immune globulin, rabies immune globulin and vaccine, hepatitis immune globulin and vaccine, and Rho immune globulin), available from pharmacy, or in the EC; thrombolytics; vasopressors; volume expanders.
- B. Equipment and Supplies in Rooms for Life-threatening Emergencies, e.g., Cardiac Arrest, Multiple Trauma. Requirements include (*RC*):
1. Suction equipment (flexible and rigid).
 2. Oxygen equipment (including simple and nonrebreathing face masks, pediatric oxygen hood and infant and child-size bag–valve–mask devices).
 3. Endotracheal equipment:
 - a. Adult-size endotracheal tubes, stylets, laryngoscope blades, Magill forceps.
 - b. Pediatric-size endotracheal tubes 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, uncuffed; 6.0, 6.5, 7.0, 7.5, 8.0 cuffed; pediatric stylets; laryngoscope blades 0, 1, 2, 3 straight Miller; 1, 2, 3, 4 curved Macintosh, and pediatric Magill forceps.
 4. Airways, all sizes (including guide sizes: 00, 0, 1, 2, 3, 4).
 5. Foley catheter equipment.
 6. NG tube equipment, all sizes (including 10, 12 Fr). Feeding tubes (5 and 8 Fr).
 7. ECG machine: paper, paste, adult, pediatric, and neonatal-size electrodes.
 8. Intraosseous—Jamshidi bone mar-

- row needles (or equivalent) for intraosseous infusion (15 and 18-gauge).
9. IV access equipment, both central and peripheral.
 10. Cardiac and oxygen saturation monitoring for neonatal temperature monitoring and warming.
 11. Fiberoptic bronchoscope for intubation.¶
 12. Continuous (CPAP) and bilevel (BiPAP) positive airway pressure equipment and available heliox.¶
 13. End-tidal CO₂ detector.
 14. Gloves/gowns.
 15. Protective eyewear.
 16. Masks (TB-protective).
- C. Other Treatment Rooms. The minimal requirements are (RC): suction equipment, oxygen equipment, airways, privacy.
- V. Ancillary Services
- A. Laboratory for Stat Specimens. Requirements are: (CC) Laboratory to analyze stat specimens from the EC on a priority basis, 24 hours per day, seven days per week, located within 5 minutes of the EC, for the following tests:
 1. Blood gases, beta-human chorionic gonadotropin in blood/urine, hemoglobin, hematocrit, potassium, glucose, carboxyhemoglobin, and methemoglobin—within 10 minutes.
 2. Calcium, Sequential Multiple Analysis—seven serum tests (SMA 7) or equivalent, serum ammonia, urinalysis, amylase, prothrombin time (PT), and/or partial thromboplastin time (PTT) and international normalized ratio (INR)—within 60 minutes.
 - B. Toxicology Screening Capability. Capability to obtain levels 24 hours/day, seven days/week (CC).
 1. Requirements include but are not limited to serum levels for:
 - a. Acetaminophen, digoxin, diphenylhydantoin sodium, lithium, salicylates, theophylline, ethanol, and osmolality, determined by a freezing point depression osmometer—within 90 minutes.
 - b. Barbiturates, ethylene glycol, methanol—within four hours.
 2. Specific toxicologic tests may be ordered for validation purposes if indicated.
 - C. Blood Bank. Requirements are (CC):
 1. Two units of packed cells of O-negative blood within 5 minutes.
 2. Two units of type-specific blood within 15 minutes.
 3. Type- and crossed-matched blood within 45 minutes.
 - D. Radiologic. Requirements include (CC): Radiology capability for high-priority EC patients on an individual basis 24 hours/day, seven days/week as follows (time to initiate emergent study/time to result): standard radiographs—5 minutes/10 minutes; ultrasonography—5 minutes/30 minutes; CT—5 minutes/30 minutes; angiography—1 hour/2 hours; magnetic resonance imaging (MRI) (or acceptable alternative)—30 minutes/1 hour (if not available on site, transfer policy that upholds above standards must be in place); nuclear medicine capability (or acceptable alternative).
 - E. Central Sterile Supply Department. Sterile supplies available to EC 24 hours/day, seven days/week (CC).
 - F. Security. Requirements include (CC):
 1. Security personnel support must maintain a safe and secure environment for both patients and staff across the entire range of departmental conditions.
 2. Police and security facilities and/or special officers assigned to the EC 24 hours/day, seven days/week. If personnel are not assigned, please explain as to availability of and process for access to security force.
 - G. Housekeeping (CC). Housekeeping and cleaning service assigned to the EC 24 hours/day, seven days/week.
- VI. EC Records (CC)
- A. Medical Records. The creation of a medical record should be immediate and not delay patient care. It is required that:
 1. All past record(s) (inpatient, outpatient, EC) be easily retrievable and available 24 hours/day, seven days/week. All records are to be incorporated into a patient unit medical record. A computerized alternative is acceptable. Pertinent records to the patient's immediate care should be available.

¶Or immediately available in the hospital.

2. Each visit will have a separate EC record filled out, at least in duplicate (e.g., for admitting, QA, billing).
 - a. The original should be incorporated into the patient's unit medical record.
 - b. A copy is to be kept on file in the EC for quality assurance and statistical data collection purposes at least until the file is incorporated into the permanent medical record.
3. Each EC record is to include the following:
 - a. Current and updated patient identification data (if such is not available, the reason for it should be clearly documented in the record).
 - b. Time and means of arrival and departure.
 - c. Pertinent history and physical findings, including vital signs and appropriate assessment.
 - d. Emergency care given to the patient prior to arrival to the hospital; attach ambulance call report form to the original record after completing the bottom part of the form noting patient diagnosis, disposition, and EC record number.
 - e. Diagnostic and therapeutic orders (indicate presence or absence of allergies).
 - f. Clinical observations, interventions, and reaction to treatment.
 - g. Results of procedures, x-rays, and tests, transcribed to EC record (all tests that are done on an emergency basis, while the patient is in the EC).
 - h. Diagnostic impression at the termination of EC visit, including final disposition, patient's condition at discharge, and what instructions were given to patient and/or family when applicable, with the patient's and/or family's signature who received the instructions, as well as the signature of the person giving the instructions.
 - i. When the patient leaves against medical advice (AMA), it will be clearly documented and signed by at least two professional members of EC staff.
 - j. The record will be signed by all the physicians treating the pa-

tient in a legible and identifiable manner.

- k. Notation of discharge time.
 - l. EC data collection must be compliant with state and federal documentation requirements (e.g., CDC DEEDS data elements).

VII. Manuals and References

- A. Written Policies and Procedures (RC).
 1. It is required that there be written policies and procedures relating to the scope and conduct of patient care in the EC.
 2. These policies and procedures are to be:
 - a. Readily available to all the staff in the EC 24 hours/day, seven days/week.
 - b. Approved by medical, nursing, and administrative leadership staff.
 - c. Reviewed at least on a yearly basis with an authorizing signature and date of last review.
- B. Current Reference Material. Requirements include (CC):
 1. Regional poison control telephone number available.
 2. Current editions of references pertaining to the following are required (RC):
 - a. ACLS: AHA; ATLS: American College of Surgeons; EM; hospital formulary; internal medicine; orthopedics; pediatric EM; PALS: AHA or the American Academy of Pediatrics; *Physicians' Desk Reference* (PDR) (or equivalent); pharmacology; radiology; toxicology.
- C. Current Reference Material (RC). References for acute management of the following emergencies are *recommended*: Dermatology; environmental; obstetrics/gynecology; pediatrics; wilderness medicine.
- D. Current Referral and Consultation Services (RC). A list of referral consultative services should include: Ambulance transport and rescue services; antivenom services; medical examiner; police; radiation exposure services; special care services, not provided by the hospital; state and local health departments; tissue and organ donation centers; HBO therapy services; child support enforcement; emergency children's service; social service.

VIII. Continuous Quality Improvement. Areas include:

- A. Performance Improvement Projects (CC).
 1. An active departmental strategy should demonstrate performance improvement in overall process, patient outcome, and administration.
 2. Several specific projects should be made available to the surveyor to demonstrate the above with documentation of initial evaluation, quality improvement (QI) implementation, and endpoint improvement.
- B. EC Records (CC).
 1. Records will be randomly sampled for review by the medical director or his or her designee as to the adequacy of services rendered, adherence to protocols, and adequacy of documentation.
 2. There should be a set mechanism for the correction of identified deficiencies.
 3. There should be an automatic audit of all records of patients dying within 24 hours of arrival to the EC whether admitted or not.
- C. Support Services (CC).
 1. Review of:
 - a. All EC radiographs by a radiology attending with the official interpretation incorporated into the patient's medical record *within 24 hours*.
 - b. All abnormal EC laboratory tests by the medical director and/or his or her designee within the following time frame:
 - 1) Stat laboratory tests within *10 minutes*.
 - 2) Urgent laboratory tests within *60 minutes*.
 - 3) Demonstrate the mechanism by which all delayed test results are reported, followed up, and documented within *24 hours of time posted by laboratory*.
 - c. Compliance with the policy that surgical specimens removed from any patient in the EC be sent to the pathology department (except where otherwise required by law enforcement agents) and that the official report be a part of the EC record within 24 hours.
 2. A recall procedure to be implemented for patients who require additional

studies or treatment as determined by the review process.

- D. Antibiotics (RC). There will be a medical staff review of the clinical use of antibiotics on an ongoing basis.
- E. Transfers (RC). There will be a review mechanism for all transfers.
- F. Outpatient Department (OPD) Referral (RC). OPD referral from the EC will be reviewed for appropriateness and timeliness.

IX. Education

- A. Overview (RC).
 1. The EC should demonstrate an ongoing commitment to education. The center should serve as a local and regional educational resource, disseminating information and providing training to a variety of constituents both within and external to its institution. These include medical and nursing personnel, out-of-hospital personnel, residents and students, and the general public.
 2. The educational program should be integrated with approved residency training and graduate training programs. The educational program should address the needs of the center's clinical enterprise, providing state-of-the-art information on the practice of EM. The center should assess the unique educational needs of the community it serves and provide programs that enhance the delivery of emergency services.
 3. There should be evidence of sustained funding for educational activities.
 4. Traditional structured educational classes and courses should be available. The center should also demonstrate its efforts at meeting educational needs through innovative programs and/or technology. The center should have a system in place to monitor the effectiveness of its programs and faculty.
 5. Working relationships should exist between the center's educational program and:
 - a. Office of graduate medical education.
 - b. Office of continuing medical/nursing education.
 - c. Local/regional/state office of emergency medical services.

B. Description of Educational Activities (*RC*).

1. Provide an overview of the activities and scope of the center's educational program. Describe faculty and staff commitments, support from your parent organization, as well as how your program is integrated with other educational programs at your institution.
2. Describe the funding support for your educational program.
3. Describe the process of how the center assesses and meets community needs. This should include a description of public educational programs in injury and illness prevention, initial treatment, emergency access to care, and appropriate use of emergency system resources.
4. Describe the process used to measure educational program and faculty/teacher effectiveness.
5. Describe how the center has met the unique educational challenges of out-of-hospital personnel to include regional training in the response to disasters, mass casualties, terrorism, and exposure to hazardous materials.
6. Provide documentation for all of the above within the preceding 12 months.

X. Research

A. Overview (*RC*)

1. The EC should demonstrate an ongoing commitment to high-quality biomedical, clinical, and health services research. The center should actively support and encourage collaborative efforts with other academic departments and institutions through participation in research endeavors.
2. The center's research program should be structured to work closely with residency training and graduate training programs. The research program should collaborate with the departmental CQI/QA program in assessing the quality of care rendered through structured patient outcome and process evaluation, while adhering to institutional review board (IRB) and federal (DHHS/FDA) regulations.

3. There should be evidence of past and present grant acquisition from industry, private foundations, and federal funding organizations.
4. Structured research didactic sessions and conferences should be available for attendings, residents, nurses, and medical students. Additionally, the center should have in place a system to monitor its research activities and progress, review protocols for feasibility, address budgetary issues, and allocate resources as well as to mentor faculty, attending physicians, residents, and nurses in the research process.
5. Working relationships should exist between the center's research program and local support and regulatory bodies such as the: IRB; animal care committee; office of research grants and contracts; department/division of biostatistics or other biostatistical support; basic science investigators.

B. Research Program Description (*RC*).

1. Provide an overview of the activities and scope of your center's research program. Describe faculty and staff commitments, support from your parent organization, and areas of interest.
2. List and briefly describe research projects carried out by your center over the preceding three years.
3. List and briefly describe funding support for research projects over the preceding three years.
4. Describe your center's efforts at disseminating research findings: presentation of abstracts at scientific sessions, publication of abstracts in meeting proceedings and peer-reviewed journals, publication of manuscripts in peer-reviewed journals, invited presentations.
5. List all peer-reviewed publications by EM faculty within the preceding three years.

XI. Administration

A. Overview (*CC*)

1. The EC should have the necessary administrative resources and structural organization to carry out its comprehensive mission. In addition to strong leadership and sound man-

agerial practices, sufficient support personnel and dedicated administrative facilities are necessary to ensure stability and success. The center should be capable of simultaneously addressing internal departmental issues, interdepartmental and hospital issues, and external issues of vital importance to the center.

2. Internally, the center's administrative unit should ensure that the care delivered meets acceptable standards for quality and cost, that local and national regulations are adhered to, and that acceptable methods exist for communication and information exchange among all personnel. All services, research, and educational programs should be coordinated.
3. The administrative unit should maintain strong working relationships with hospital departments and other functional elements within the hospital. The center's leaders should actively participate in governing bodies, clinical conferences, hospital forums, and leadership roles. The center should be recognized for its contributions to the success of the parent organization.
4. An EC should demonstrate the ability to provide assistance, support, and leadership to individuals and organizations within its surrounding region. Effective communication and a community-based needs assessment should direct the center's efforts.

B. Description of Center Administration (CC)

1. Provide an overview of your center's central administration and organization. Describe faculty and staff commitments, support from your parent organization, and the mission of your center.
2. Provide an overview of the financial resources dedicated to the center and its programs.
3. Describe how your center coordinates its services, research, and educational programs.
4. Describe how your center maintains effective communication with its own personnel and with individuals/organizations that interact directly with the center.
5. Describe how the center evaluates its

programs and services for effectiveness.

6. Describe the working relationships between the center, hospital departments, and academic units.
7. List the center's current community outreach programs, which focus on the following: the general public; community organizations; out-of-hospital personnel; medical and nursing personnel.

XII. Out-of-hospital Care (RC). Out-of-hospital care is an integral part of an EC. The following questions/issues must be discussed:

- A. Are you an out-of-hospital base station?
- B. Do you have an out-of-hospital care coordinator? Who fills this role?
- C. How is out-of-hospital care coordinated in your community?
- D. How is medical direction provided to the out-of-hospital personnel?
- E. Do you provide training for out-of-hospital care personnel?
- F. What aspects of out-of-hospital care do you audit as part of your quality improvement?
- G. Have you performed any out-of-hospital care research in the preceding three years?

XIII. Information Systems (RC). Being able to immediately obtain patient information is critical to the care of many patients. ECs should be able to obtain a hospital record within 10 minutes of request or to be able to immediately pull up the following patient specific information from the hospital computer: problem list, medications, list of clinic dates and hospital admissions with discharge diagnoses, hospital discharge summaries, previous laboratory data, and final reports of radiographic studies. Please explain how patient information is obtained. If medical records are obtained within a median of 10 minutes, please include a random audit of the timeliness of 100 consecutive requests for medical records from the EC. The following questions/issues must also be addressed:

- A. What aspects of emergency care in your EC are computerized?
- B. What are your one-year, five-year, and ten-year plans for information systems in your EC?
- C. Do you have internet capability within the EC?

- D. Do EC nursing management, physician staff, and administrative, educational, and research leadership have voice mail/e-mail?
- XIV. Disaster Planning (*CC*). Emergency centers will be well prepared for local disasters.
- A. The EC Must Be Integrated as a Key Element in Regional Disaster Plans (*RC*). The following issues/questions must be addressed:
1. Describe the EC integration as a key element in regional disaster plans.
 2. Does your hospital have a disaster committee?
 3. Does the EC have a representative on this committee?
 4. Please include your hospital's and EC's disaster policy/plan. The disaster plan must be consistent with JCAHO policy requirements.
 5. Please describe the specific disaster drills the EC has participated in the preceding three years.
- B. Development of and Compliance with Hazmat Protocols (*RC*). Describe the development of and compliance with hazmat protocols.
- XV. Benchmarking (*RC*)
- A. Overall Process Indicators.
1. For outpatients, time from arrival to discharge.
 2. Time from arrival to admission and subsequent arrival on floor, in unit, or in OR.
 3. Describe any observation units in use in the EC.
- B. Patient Satisfaction (*RC*).
- C. Patient Rate of Unscheduled Returns to EC within 72 hours (*RC*).
- D. Time from Arrival to Treatment (*RC*). Please select two to three indicators to demonstrate your current process for timely treatment of the following emergencies:
1. Acute myocardial infarction.
 - a. Arrival to ECG time.
 - b. Arrival to emergency physician (EP) evaluation.
 - c. Arrival to thrombolytic therapy and/or arrival to angioplasty times.
 2. Acute ischemic stroke.
 - a. Arrival to EP evaluation.
 - b. Arrival to head CT result.
 - c. Arrival to head CT review by neuroradiologist.
 3. Multiple trauma notification.
 - a. Number of staff routinely involved. Describe nurse, technician, resident physician, attending physician, surgical staff roles and responsibilities.
 - b. Time from arrival to EP evaluation.
 - c. Arrival to OR in the subset of patients requiring emergency operative intervention.
 4. Neurosurgical operative emergency.
 - a. Arrival to EP evaluation.
 - b. Arrival to completed neurosurgical consultation.
 - c. Arrival to OR.
 5. Septic shock.
 - a. Arrival to EP evaluation.
 - b. Arrival to antibiotic therapy initiation.
 6. Open fracture.
 - a. Arrival to EP evaluation.
 - b. Arrival to splinting.
 - c. Arrival to completed orthopedic consultation.
 - d. Arrival to OR.
 7. Traumatic spinal cord injury.
 - a. Arrival to EP evaluation.
 - b. Time to high-dose steroid therapy.
 - c. Arrival to completed subspecialty (i.e., orthopedics or neurosurgery) consultation.
 8. Acute arterial occlusion.
 - a. Arrival to EP evaluation.
 - b. Arrival to completed vascular surgical consultation.
 - c. Arrival to OR.
 9. Cardiac arrest.
 - a. Number of staff routinely involved, describe: nurse, technician, resident physicians, EP roles and responsibilities.
 - b. Time to intubation.
 10. Acute respiratory failure.
 - a. Time to intubation.
 - b. Time to ICU.
 11. Carbon monoxide poisoning.
 - a. Arrival to EP evaluation.
 - b. Arrival to oxygen therapy.
 - c. Arrival to hyperbaric chamber, for those patients requiring HBO therapy.
 12. Bacterial meningitis.
 - a. Arrival to EP evaluation.

- b. Arrival to antibiotic therapy initiation.
- 13. Neutropenic fever.
 - a. Arrival to EP evaluation.
 - b. Arrival to antibiotic therapy initiation.

XVI. Hospital Accreditations (CC). Institutions applying must be accredited by the JCAHO.

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Clinical Pearls (cont. from p. 637)

Diagnosis. Pyoderma gangrenosum. (After naming the disease, the patient remembered that the lesion on her buttock was diagnosed as pyoderma gangrenosum.)

Discussion

History. Pyoderma gangrenosum (PG), first described at the Mayo Clinic in 1930 by Brunsting and colleagues, is a rare ulcerating skin disease of uncertain etiology. The entity was originally named "pyoderma" because it was thought to be initiated by a streptococcal infection leading to a secondary cutaneous gangrene. Although the etiology of PG remains obscure, the lesion is not caused by an infectious process. However, Brunsting et al.'s precise clinical description of the entity ensured that "pyoderma gangrenosum" would persist as the diagnostic term.¹

Clinical Features. The incidence of PG is difficult to estimate because most reports involve a single case report or a small series of patients. PG primarily affects adults, with an equal distribution between men and women. It typically develops during the fourth and fifth decades² of life, but may occur during childhood.³ PG often occurs in patients with chronic underlying inflammatory or malignant disease such as HIV infection,⁴ leukemia,⁵ inflammatory bowel disease,⁶ rheumatoid arthritis, chronic active hepatitis, or other immunosuppressed or deficient states.⁷ However, no associated disease is found in 40–50% of patients with PG.⁸

Several clinical variants of PG have been described and are classified as ulcerative, pustular, bullous, and vegetative. Ulcerative PG typically evolves from an inflamed painful pustule or a necrotic ulcer as historically described by Brunsting et al.¹ The initial lesions are often surrounded by an inflammatory halo. Within a few days some of the pustules enlarge and begin to necrose centrally. The fully developed lesions are characterized by central ulceration with a well-defined blue undermined border. Actively advancing lesions often have an intense erythematous halo that may extend up to 2 cm from the border of the ulceration.

These ulcerations are characteristically painful and evolve rapidly. Although ulcerative PG may occur on any site, it has a propensity for the lower limbs and trunk.² Some pustules may not progress to ulceration. Pustular PG may be an abortive variant of ulcerative PG. These painful pustules occur mainly on the extensor aspects of the extremities and upper torso during an exacerbation of ulcerative colitis and are associated with arthralgias and fever.⁹ Similar presentations have been seen after jejuno-ileal bypass surgery for morbid obesity, as part of the bowel-bypass syndrome.¹⁰ A superficial bullous variant has been seen in patients with leukemia. This superficial variant is usually less destructive to the deeper tissue than the typical ulcerative PG and is characterized by painful bullae.¹¹ Vegetative PG is a limited, nonaggressive, chronic, superficial variant that has recently been termed "superficial granulomatous pyoderma." These ulcerative lesions are usually more superficial with a less violaceous, non-undermined border. These lesions usually occur in healthy adults and show a predilection for the torso.¹²

Diagnosis. The diagnosis of PG is made by history and clinical appearance, because biopsy is of little diagnostic value and no laboratory test confirms the presence of PG. The emergency physician must be suspicious of PG in patients with chronic ulcerative lesions and consider other conditions that mimic PG (Table 1). A thorough history and appropriate laboratory evaluation will elicit the potential for halodermas (dermatoses caused by injection of a halogen such as bromide), which can

TABLE 1. Differential Diagnosis of Pyoderma Gangrenosum

Halogenoderma
Drug reaction
Arthropod envenomation
Factitious diseases
Gummatous syphilis
Fournier's gangrene
Mycobacterial infection
Atypical mycobacterial infection
Viral infection
Deep fungal infection
Neoplasm